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Compliments of the Author.

THE
TREATMENT OF EPILEPSY.

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NOTWITHSTANDING the fact that I have already expressed my views concerning the treatment of epilepsy (*Transactions of the American Institute of Homœopathy*, 1890), I feel that I am not amiss in here calling your attention to it. The disease is one of comparative frequency; it is universally recognized as obstinate to treatment; and its natural tendency unchecked is on rare occasions only to spontaneous cure. In my first paper I referred to the remarkably long list of remedies that have, in the past, been vaunted as sure specifics. I also mentioned some of the many operations which have given promise of effecting a certain cure. As to the remedies, they include some of the most disgusting agencies imaginable, so disgusting in fact as to readily put to shame the list with which the name of Dr. Samuel Swan, of New York has been so intimately associated, and which have burdened the fair name of homœopathy. In 1827 *The American Journal of the Medical Sciences*, then as now the greatest old-school medical journal in the world, contained a report on the *crista genu equine* (sweat scab, knee scab, mock or encircled hoof, dew claws) in epilepsy. In 1882 a western journal contained the report of a case cured by drinking the menstrual blood of a virgin. These are but examples of the desperate therapeutic measures to which recourse has been had in the treatment of epilepsy. In addition we find many drugs recommended with more or less reason, and often without any reason at all. From all of them remarkable specific effects have been alleged to have followed their use, and yet all have sunk into what is probably a well-merited oblivion.

Professional opinion seems to be unanimous in holding that epilepsy is difficult of cure, if not absolutely incurable. Exceptions are found in enthusiastic specialists and certain hobbyists, each of



whom has his favorite measure that will cure "all cases." Certain members of our school have made remarkable claims of their ability to cure epilepsy and have several times quoted me the wonderful success of Bœnninghausen, who it is said, treated over four hundred cases and cured every one. I feel, and I hope that it will not be sacrilegious to thus express myself, that there is something wrong with these figures. It is hardly likely that a correct diagnosis was made in anything like all the cases, for in those days the number of diseases liable to be confounded with epilepsy was unknown. As recently as 1879, the late Dr. McClatchey taught his pupils that epilepsy need but be differentiated from malingering; and now the best medical thought teaches that epilepsy is but a symptom of many pathological conditions, and that there are many paroxysmal convulsive affections that are not epileptic. Repeated conversations with many able men have taught me that they cure epilepsy with the greatest difficulty if at all, and with this experience I am in complete accord. I believe, however, that increased light on the subject will improve methods and lead to better results.

Many of the bad results in the treatment of epilepsy are undoubtedly due to a lack of knowledge as to what constitutes the disease. An experience that is by no means small, leads me to assert that the vast majority of cases, I might almost say all, are diagnosed in their incipency as reflex convulsions. This error is not unnatural when one considers the stress that has been placed on the frequency of reflex convulsions by certain authorities. Specialists whose training in the domain of general medicine has been sadly deficient are likewise largely responsible for the promulgation of what, as applied to most cases of epilepsy, is a false theory. It is a good rule to regard every case of convulsion *no matter how probably reflex as possibly epileptic*. While one is generally pretty safe in deciding that convulsions not due to organic disease occurring prior to the third year of life are reflex in origin, he must not lose sight of the fact that their frequent repetition can give rise to the convulsive habit; and thus true epilepsy finds its origin. It is not a pleasant task to speak to a parent of the possibility of his child degenerating into an epileptic; and yet a strict regard for duty should lead us to give that warning; for I believe that such a warning will do much to prevent a possibility from becoming a reality. That this warning is not an idle one will be shown if one but take the trouble to investigate the early history of epileptics. In more than half the cases, probably, a history of infantile eclampsia is obtainable.

Convulsions occurring after the age of three years are rarely reflex. If organic disease can be excluded, they are almost certainly epileptic.

It is not always an easy matter to say what constitutes epilepsy. While the diagnosis of the disease when characterized by convulsive seizures is usually a simple matter, it is by no means such when only attacks of *la petit mal* show a departure from health. But recently a remarkable illustration of this very point was afforded me in the case of a girl of ten years, who, for six years past, had complained of peculiar "spells" which she described as "attempts to think something, only she did not know what to think." They were periodical in their recurrence, lasted but a second or two, and were accompanied by loss of consciousness. During the six years she had been under constant medical supervision without any successful result.

And right here let me give a little piece of advice that should be adopted as a routine measure in managing every case of epilepsy: Direct your patient to keep a day-book. In this book should be recorded the number of convulsions, their characteristics, time of onset, duration, attendant circumstances, etc. All morbid phenomena occurring between seizures should likewise be carefully noted. Such a book has a two-fold purpose. In the first place it affords us a certain amount of help in treatment of the case, not otherwise obtainable; and in the second place it is invaluable as indicating most certainly the progress made. Certain hospitals treating large numbers of epileptics have specially prepared charts for indicating the number of convulsions. By means of this device one can see the course of the disease so far as it relates to the number of the convulsions, at a single glance. Without some such record as the day-book or chart, any testimony as to improvement or cure is more or less unreliable.

When once epilepsy has been developed, the plan of treatment which must be followed must include careful observance of all the rules of personal hygiene, including regular habits and careful dieting, removal of all possible sources of irritation, and proper medication, and in suitable cases surgery.

Considering first the question of diet, we come to one of the most important items in the treatment of epilepsy. Some authors do not hesitate to make this the first in importance. Here we find authorities at variance, according as they take this or that pathological view of epilepsy. Seguin, Gowers, and others taking the ground

that the nervous system should be fed with the strongest food, as in neurasthenia, do not hesitate to strenuously advocate a diet into which meat enters largely. Haig, believing that epilepsy is a disease resulting from the uric acid diathesis, prohibits meats; others while not agreeing with Haig as to the origin of epilepsy in uricæmia, consider the meat diet positively harmful as promoting a convulsive tendency. Clinical facts seen to favor the latter view, in my opinion. I think it wise, therefore, in the majority of cases to keep epileptic patients on a mainly vegetable diet, allowing milk regularly, and poultry and fish on rare occasions. Even the administration of liquid preparations of meat, as soups, broths, peptones, and the like, has a bad effect on the epileptic. I have been assured by those in charge of institutions receiving epileptics that these cases are almost invariably made worse by such a diet.

Of far more importance than the general character of the diet is the quantity eaten, and the manner of taking it. Nothing is more harmful than overloading the stomach, especially with articles proverbially indigestible. Above all things the food must be slowly eaten. These are directions which will require the greatest care to enforce, for epileptics usually have ravenous appetites, and exhibit no judgment whatever in satisfying them.

It is needless to say that indigestible foods and mixtures, as pastry, mince pies, etc., etc., should be forever eschewed.

In cases in which the seizures are almost invariably nocturnal, the evening meal *must* be taken as early as possible, and should be of the lightest possible character.

In every case the relation of attacks to diet and times of eating should be carefully studied, and our advice should be governed accordingly.

In thin anæmic cases, cod-liver oil is a positive necessity.

Alcohol and alcoholic preparations are positively harmful.

Dancing, swinging, and other amusements likely to influence the cerebral circulation deleteriously must be forever forbidden. One patient in whom I had been fortunate enough to keep the attacks away for over a year had a relapse from using a swing.

One cannot lay down any hard and fast rules concerning occupation, general amusements, etc., as each case must be studied *per se*.

The general care and management of epileptic patients is a matter of unrecognized importance. Here, I use the word care to include "discipline" as well. Parents lack firmness and wisdom oftentimes in the management of their own, and by injudicious "coddling" do

much to render ineffective well-directed efforts of the physician at cure. Many times the best results can only be obtained away from home.

Sexual hygiene is an important matter. I entertain very serious doubts that sexual excesses ever caused epilepsy, though it is certain that they aggravate it if it once develops. Epileptics are unquestionably great masturbators, probably because the disease produces a mental degeneracy that leads to that sexual vice. Masturbation, then, must be stopped. The nearer the patient comes to celibacy, the better it will be for him.

This brings me to an outside question concerning sexual hygiene to refer to which here, I take the opportunity. It has been often suggested that sexual intercourse is an absolute necessity without which perfect health cannot be attained. In proof of this many believe that after certain patients, male or female as the case may be, have been gratified sexually, there will be a general improvement in health. In keeping with this view, women are advised to get married, though in an unmarriageable condition, and men are advised "to go out." So far as epilepsy is concerned this is pernicious advice. I do not believe that any epileptic was cured by it, and many have been harmed. I believe the same to be true in the treatment of other neuroses. The only neurotic that I ever treated who was benefited by intercourse was one who was living under abnormal sexual conditions. He was a clergyman, who not wishing his wife to become pregnant refrained from intercourse; but he continued to room with her. After some eighteen months of continence, he became hypochondriacal, imagined himself impotent, and had a host of symptoms with which we are all familiar. His nightly association had served to keep up an almost constant sexual excitement which not being gratified found its vent in involuntary emissions. He was advised to gratify his desires, and then room away from his wife. The result was a perfect cure. In the majority of cases of neurasthenia we have to deal with excess and not continence.

It is an important matter to keep epileptics from dangerous places.

The reflex origin of epilepsy is a fruitful source of discussion. It is one of those questions to which the old couplet

"A man convinced against his will
Is of the same opinion still,"

most truly applies. Physician after physician can tell you of cases

that he has cured by this or that minor surgical procedure; and yet the details are barely more complete than they should be for a well-told anecdote. One friend told me that he had cured twenty-two out of twenty-five cases of epilepsy by orificial surgery. If his success was so remarkable as this, it certainly exceeds anything else known to medical science, and it is his duty to publish these cases with the most careful attention to details. I trust that this will lead him to do so. Another man can tell you of countless cases cured by circumcision. Our friend the oculist, may tell of cases cured by fitting for glasses; the aurist, of cures effected by attention to the ears. The neurologist, notwithstanding his careful attention to all possible sources of irritation, says that he cures his cases with the greatest difficulty, and in exceptional instances only. For awhile, the gynecic surgeons were oöphorectomizing the poor helpless epileptic. So far as my knowledge of medical literature goes, I know of no case in which a permanent cure has been effected by this operation other than in those to which I shall refer presently.

It is a wise plan to remove all possible irritation from the areas of distribution of cranial nerves. In keeping with this idea, teeth, eyes, ears and nose should be carefully examined and kept in order. Under no circumstances should the wild fads and fancies of the Stevens school of ophthalmologists receive sanction. Muscular anomalies may be found occasionally, and should, of course, receive *scientific* attention; but under no circumstances should the wild resort to indiscriminate tenotomy be advised or permitted.

Circumcision is wise as a preventive of masturbation. It is necessary when the redundancy is the cause of local irritation, or where there is an obstruction to the escape of urine. Circumcision is not an absolute preventive of self-abuse, as the habit is not uncommon among Jewish boys.

Many measures have been recommended for the abortion of the fits. Ligation of an extremity when the aura begins in that part has been practised with some success. In similar cases blisters encircling the arms have likewise done some good. It is an interesting as well as noteworthy fact in these cases that after the fit has been stopped at the site of the ligature or the blister several times, it acquires the habit of ending there in subsequent attacks, though there be no mechanical device there to prevent it. Of course, this relief is but temporary.

Nitrite of amyl has been used as a preventive of attacks, but it is beneficial in a very small percentage of cases.

The use of salt and other agents during the spasm does no good. The fit must run its course.

The only treatment applicable to the convulsive stage is that which will protect the patient from injury.

The medicinal treatment of epilepsy, viewed from whatever standpoint we may, is not in a satisfactory condition. From our homœopathic remedies we do not secure any regular results, while the bromide of potassium is in most cases but a palliative.

As to *œnanthe*, *cicuta virosa*, hydrocyanic acid and other so-called specifics, I have never seen one favorable result, notwithstanding the large number of cases in which they have been administered. It is but just to say, however, that they were given only in dispensary cases, in which class one must rely almost exclusively upon drug treatment, for dispensary patients have neither the intelligence nor the disposition nor the means to pursue a proper hygienic course. The most successful medication seems to be that in which the aim is to keep the general health up to the highest standard. *Nux vomica*, *belladonna*, *pulsatilla*, *bryonia* and like remedies are not only valuable, but necessary.

Much has been said of the tissue remedies. I have tried Schüssler's *kali mur.*, but without the slightest sign of success. *Silicea* and *calcarea carb.* and sulphur have apparently done considerable good when systemic conditions indicated those remedies. *Argentum nitricum* in one case effected a cure that lasted two years, when there was a relapse. I know nothing of the subsequent history of the case.

In the case of failure to get epileptic seizures well under control within a reasonable time, there should be no question concerning the resort to bromides. Bromide of potassium has been abused to such an extent as to deter the timid from its use. It has been accused of producing a condition far worse than the original trouble for which it was given. Physicians of all schools unite in its condemnation. And yet if the drug is used with judgment, it is the greatest boon certain epileptics have. When it is suited to the case—that is to say when it is given in cases in which it causes a cessation of the convulsions—it most assuredly improves the mental faculties instead of depressing them. I have seen this over and over again. There need be no fear of giving large doses. One of the reasons for failure hitherto with most physicians is that the maximum dose given is but thirty grains daily. In the majority of cases such doses are inefficient, and, unless they control the fits, must show a depress-

ing influence on the mind. When, however, an efficient dosage is adopted—and by efficient I mean quantities sufficient to keep the fits away entirely—one will be astonished at the improvement in the patient's general condition.

One naturally views the effects of bromides in epilepsy according to his individual experience. I do not wish to convey the idea that the drug is without ill-effect in all cases, or that it is always curative or even palliative. On the contrary, I know this is not the case. But there are a large number of epileptic patients whose natural tendency is towards dementia. They are desperate cases, and they go from bad to worse. Most of them have organic cerebral disease as their anatomical substratum. No drug will do them one iota of good. Yet they have been dosed, not only with bromide, but with every conceivable drug under the sun. Quack medicines have been administered by the score, and bromides have been administered by the five cents' worth, without the sanction of a physician. Is it any wonder that such cases end in the asylum? At home their friends are often too lazy or too poor to give them the proper care, and this only adds to their miseries. Such cases are often met with as well in the families of those who are careful, but here good treatment does much to prevent the terminal dementia.

In dispensary practice one meets with a middle class of patients who follow advice perfectly so far as it relates to medicinal treatment, but who will not or cannot obey general directions. Such patients cannot expect to obtain the best results from carefully-given medical advice.

If one wishes to avoid bromism, and would carry the palliative treatment of epilepsy to its greatest efficiency, he must pay the greatest attention to the minutest details. The fact that epilepsy is best treated palliatively by bromides should not lead to routine carelessness.

The dose that will be efficient in any given case can only be decided by careful observation of that case. Repeated visits to the physician, I might almost say daily visits, are necessary to decide this point. The smallest dose that will suppress the seizures is the one to employ. I would not be satisfied with a partial suppression. I would aim at making the suppression absolute. Of course, this result can be obtained only in a minority of the cases; then one must be satisfied with the dose that produces the maximum effect without exciting bromism.

One of the unfortunate effects of bromide of potassium is its

tendency to disorder digestion, an effect, too, that has more to do with the production of bromism than appears at first sight. We have two measures that obviate this to a great degree, namely, large dilution of the dose and the administration of the drug in a feebly alkaline mineral water, as Vichy. These are highly important points, which must be observed in every case. Given thus, the medicine is much more rapidly absorbed. It should likewise be drunk slowly.

It is better to give the drug in as few doses as possible. I would never give it oftener than three times daily. With the majority of people it is a difficult, if not almost impossible matter, to get them to take medicine regularly over any great length of time. The longer the intervals between doses the more have we reason to expect regularity. As to the times at which the drug should be given, we must be governed by individual cases. One dose should be given as early in the day as possible; while another should be given at an hour about from four to six hours before the usual time at which the fits are likely to occur. Gowers has recommended one large dose daily, and that dose to be taken at bedtime.

One can never, and I mean never most emphatically, entrust the administration of the drug to the patient himself. I never saw an epileptic who would take his medicine regularly unless he had some one to attend to it for him. This is true, notwithstanding the strongest incentives to recovery; it becomes more forcible when medicinal action has secured an all but permanent cessation of seizures. Epileptic patients are their own worst enemies.

Having once begun the administration of the bromides, it is necessary to keep them up steadily for years. It has been said that a case cannot be considered as cured until the fits have remained away for three years. I would err on the safe side, and say that one can never say when a case is cured. The fits may have remained away for five, nay, even ten years, and yet a relapse may occur. I would insist upon continuous medication for a period never less than three years after the last seizure, and, if possible, I would keep the patient under the drug for five years. I do not know but that if I were an epileptic I should insist upon taking it all my life.

In female cases, in which the attacks seem to recur more frequently about the menstrual periods, it is advisable to give the drug in larger doses then than at other times. I should say here that the aggravation of attacks about the menses does not by any means signify a reflex origin of the disorder.

Bromic acne has been greatly feared. This deleterious effect of the drug should not occasion the slightest anxiety. It may be entirely obviated by the administration of Fowler's solution of arsenic. The bromic acne is not an index of the physiological effect of the drug. The readiness with which it is produced depends largely upon peculiarities of skin structure.

Some patients are more susceptible to the unpleasant effects of bromide than others. While small doses exert a depressing influence in a few, there are others who can take the most extravagant doses without a symptom being produced thereby. Other things being equal, children seem to be able to withstand bromism better than adults. Small, delicate people, people with organic heart disease or feeble circulation, or epileptic cases depending upon organic disease of the brain, stand bromides very poorly. Under all these circumstances the drug should be administered with the greatest care, as unpleasant, if not dangerous effects, may be produced if its use is persisted in.

Even after having decided upon what is apparently an efficient dosage in a given case, it is not wise to let the patient keep on with the drug without medical supervision. There are circumstances that indicate diminution or increase of dose. In the case of any intercurrent illness, medical or surgical, the large doses are not so important, for illness and surgical operations and accidents are of themselves most efficient anti-epileptics. The drug should not be discontinued, however, excepting in the case of an acute illness of a most depressing character. Patients who are subject to exacerbations and ameliorations of attacks in certain seasons of the year should have the dosage regulated accordingly. Increasing age and size of young epileptics will require a gradual increase in the dose. An extra dose should also be administered when patients have experienced any unusual excitement or fatigue.

If all the above rules are carefully followed, I am satisfied that bromism will, in a great measure, be robbed of its terrors. Unless they are followed in the minutest particular, the best results from the drug will not be obtained.

There has been much discussion as to which of the bromides is the best. I do not think that this question is one of much importance. What one will not do, the other certainly will not.

Seguin has recommended, in case of the failure of the bromide to control the seizures, that a portion of that drug be replaced by a certain amount of chloral. His rule is to substitute five grains of chloral for every ten grains of bromide displaced.

Bromides are not as efficient in controlling the mild epileptic attacks as they are in the case of the convulsive ones.

As to the bad effects of bromide upon the mind, I think, as I have already hinted, that they are largely overdrawn. The great trouble is that epilepsies are not properly differentiated. Certain types are invariably associated with the highest degree of mental degradation, while cases exist in which the most brilliant intellect is to be found. It has been said that Julius Cæsar and Napoleon Bonaparte were both epileptics. These cases, however, are exceptional. The natural tendency of epilepsy is to produce mental deterioration proportionate to the severity of the disorder. This fact was well recognized many years before the bromides were introduced as medicine. One should not be too ready, therefore, in ascribing the dementia in a given case to the effects of the treatment, rather than to the course of the disease.

No disease has more bones of contention as to its treatment than has epilepsy. Not only the bromides but the surgical measures proposed for its relief have been discussed, often indeed with a spirit that is far more acrimonious than scientific. There can be no question that some cases have been cured by the removal of reflex irritation, but these are exceedingly few and far between.

The brilliant successes of abdominal surgeons have led to indiscriminate oöphorectomizing of epileptic patients, a practice that, so far as I am aware, has not been fraught with one cure, excepting in some few cases where there was severe ovarian disease. I consider it a practice that should be condemned in unqualified terms to remove healthy ovaries for the cure of epilepsy and other neuroses. Practical experience of the best and most experienced gynæcologists and neurologists bears out this view. It is true that cases of cure have been reported in medical journals, but the reports have usually been made altogether too soon after the operation. No case of epilepsy can be considered as having been cured by an operation until two years have elapsed without a fit of any kind.

If oöphorectomy is a proper procedure for the cure of epilepsy, castration is also in the case of male patients. If we are to believe writers, it has much to commend it, for, so far as I am aware, every case thus far reported in which it has been tried has resulted in a cure. But in justice to epileptics, let me say that these reports are valueless.

The general impression as to the prognosis of traumatic epilepsy treated by operation is decidedly incorrect. Books teach and phy-

sicians believe that a trephining in a case of traumatic epilepsy is tantamount to cure. No greater error was ever promulgated. A small percentage of traumatic epilepsies are permanently cured by trephining. Nearly all experience a temporary relief from the operation. This relief, however, is merely that which follows any surgical procedure done on an epileptic. I have taken the pains to read over the reports of a large number of traumatic cases operated, and I must say that the same degree of carelessness manifested in other reports would bring upon the author a well-deserved rebuke. Thus I find an article headed, "Epilepsy of Ten Years' Standing; Trephining; Cure." Reading the article, I find that the convulsions had evidently occurred as the result of an old traumatism, probably a fracture; that the case had been trephined at the seat of fracture, and that up to the time of leaving the hospital there had been no recurrence of the seizures. It is surprising, moreover, to find that the men making these incomplete reports are men of intelligence and learning. Occasionally, however, we find reports of cases really cured. While I have not analyzed the reports sufficiently to give statistics, I feel safe in estimating the proportion of cures of traumatic epilepsy at not over 20 per cent., and I would not be surprised if they did not reach 10 per cent. Results might be better if the cases were better selected; in fact, I am sure of it. In a general way it is a safe rule to trephine all cases at the seat of injury in which the relation of cause and effect between the injury and the epilepsy is well established. We have not much reason to expect a favorable result unless the convulsions present characteristics that indicate a local seat of disturbance. In every case we cannot be too careful as to how much we promise.

Sachs endeavors to account for the unfavorable results from trephining for epilepsy on the theory that a secondary sclerotic condition is set up by the injury. There is much to favor this view. He thus explains, I am satisfied, those cases of traumatic epilepsy which are apparently dependent upon a general cerebral disturbance.

Sachs's remarks at once raise the question of prevention of epilepsy after head injuries. If we cannot cure traumatic epilepsy, can we prevent it? I do not think we know enough to answer this question. It has been said, by whom I do not now just recall, that 50 per cent. of head injuries develop epilepsy in later years. I have before quoted this remark approvingly. More mature consideration leads me to doubt it; but the percentage is undoubtedly large. Let the figures be what they may, our course is the same. Every case of fresh cranial injury should be treated according to principles that

will give the parts the best chances for perfect healing. I believe it to be a good rule to trephine all fractures where there is the slightest evidence of brain injury. There may be no depression of bone, but there may be a sub- or extra-dural hæmorrhage, attention to which is an important matter. On the other hand, one must not promise that trephining will certainly prevent epilepsy, for cases have been reported in which the simple operation itself has been the traumatism that started up the disease.

Early operation should be performed as an exploratory procedure primarily. Secondarily, it acts beneficially by relief of tension.

Aside from traumatic cases, trephining has been recommended in certain types of epilepsy presenting a local origin. It has also been recommended as an empirical measure in idiopathic cases. All cures reported in the latter class are not satisfactory, the reports having been made too soon after operation. Sometimes most remarkable primary improvement occurs. This was well illustrated in a case recently under the care of Dr. Van Lennep and myself. The child had been having thirty to forty convulsions daily. Large doses of bromide given in order to suppress as far as possible the general character of the fits leaving the special character still predominant, only served to reduce the number to fifteen or twenty daily. A trephining over the middle of the fissure of Rolando, on the side opposite to that on which the convulsions were most marked, was performed. In the two months after the operation the child had but two attacks, and they were within the first week or two afterwards. I do not know what the final result has been.

Jacksonian epilepsy is the form of the disease in which surgery has been offered as the sovereign remedy. Experience has not borne out the promise of good things made. Improvement has followed in most cases; but relapses have been common. The paralyses following the excision of a cortical centre have, in most instances been temporary. The late histories of those cases in which I have been interested have not been what was hoped for. But yesterday I saw one of these cases that had been operated upon nearly two years ago. The report is: Temporary improvement in number of convulsions; remarkable improvement in all the mental faculties; severe neuralgic pains, having their focus at the old seat of operation. Another case that pursued a brilliant course for three months had a convulsion the day after leaving the hospital. Concerning the subsequent history I am ignorant.*

* Since writing the above I have had the opportunity of examining a similar

Orificial surgery has been recommended as a cure for epilepsy. I have had three cases treated thus, and with failure in each instance. I am inclined to view this procedure, so far as it relates to epilepsy, as only a measure for the removal of local irritation. Yet I am not unmindful of the claims made by my Southern friend referred to in the early portion of this paper, who cured his twenty-two cases by surgical procedures alone.

Ligation of the vertebral arteries and other operations have been recommended, but have been abandoned.

Thomson, of New York, has recommended the employment of a red-pepper pack as a therapeutic measure. It is supposed to produce general peripheral irritation and exert the same influence as major surgical operation.

Actual cautery applied to the head has not been without its adherents. Falling against a stove while in a fit has effected temporary cures.

There is one thing to say concerning operative treatment of epilepsy. So much is expected from the operation itself that nothing is done afterwards to maintain the improvement. This is a serious mistake. I suppose we must put up with it while people are what they are. Still, we should fight it.

Epilepsy undoubtedly sometimes recovers spontaneously. As I pen these lines a medical friend tells me of three cases which he knows were permanently cured by time, diet and well-regulated habits.

In the preceding pages I have given my ideas as to the proper treatment of epilepsy. Let me say that they are the result of experience in managing the pick of obstinate cases. But few of them have been of recent origin. There is much more to be said on the subject. There is much to be learned. We cannot become wiser, however, if reports are presented in anecdotal style, with but little attention to detail. We want facts and histories of cases extending over years. Anything short of this is unsatisfactory. When this is done, I believe our results will be better, and epilepsy will be robbed of many of its terrors.

case extensively quoted in medical literature as a cure. The result to date is: "Entire cessation of attacks for a number of months after the operation; return of convulsions to nearly their former frequency; permanent and remarkable improvement in the mental condition."

